Orthopaedic Emergencies

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Purpose

- Discuss orthopeadic conditions which require emergent intervention

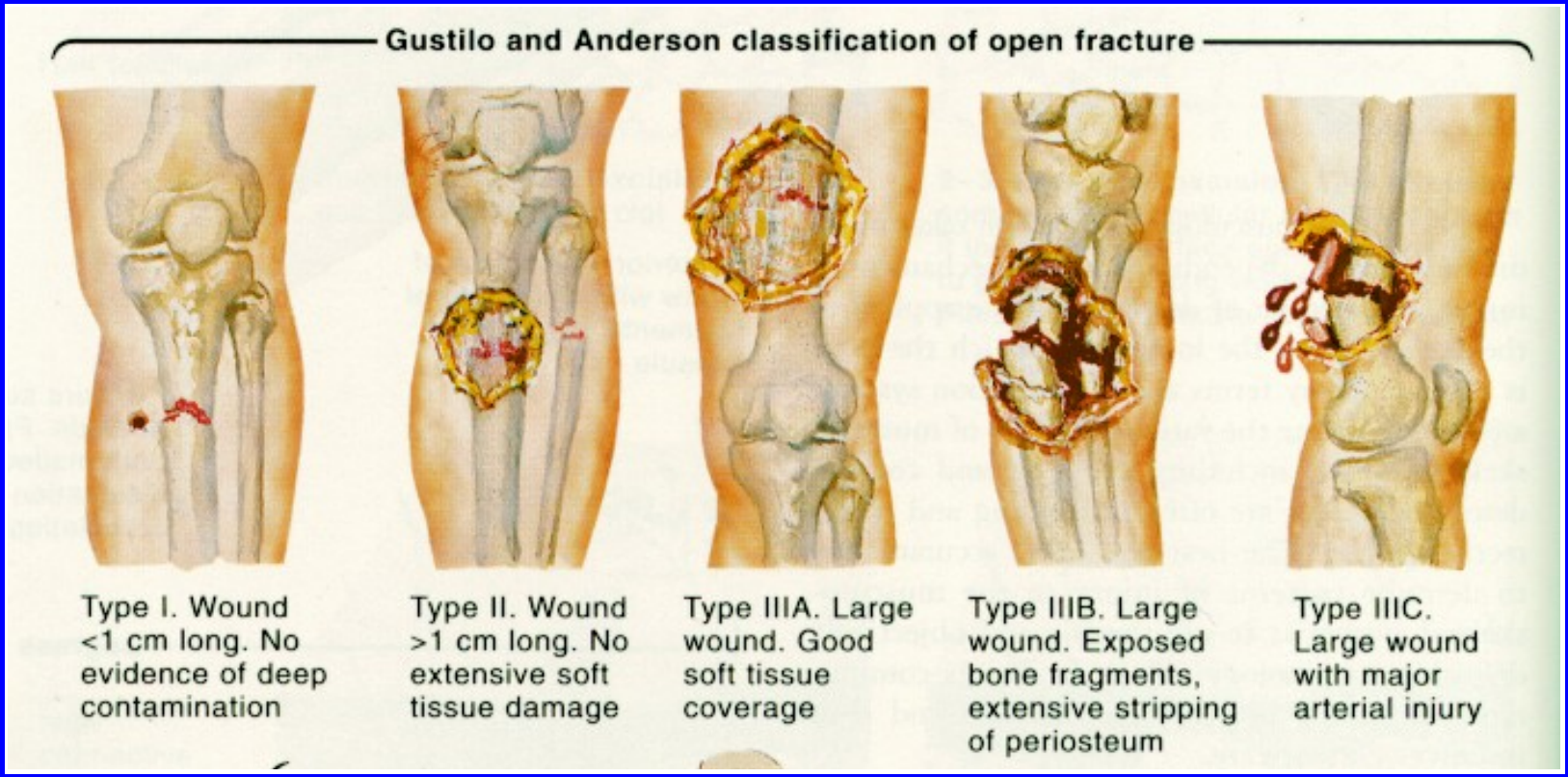
Outline

- case presentation format
- review injuries and infections which require emergent intervention
- open fractures, dislocations, compartment syndrome, stress fractures, flexor tenosynovitis, septic arthritis

Case Presentation

- 26 yo male fell while hiking
- 3cm laceration in pre-tibial area
- marked swelling, extreme pain

Open Fractures

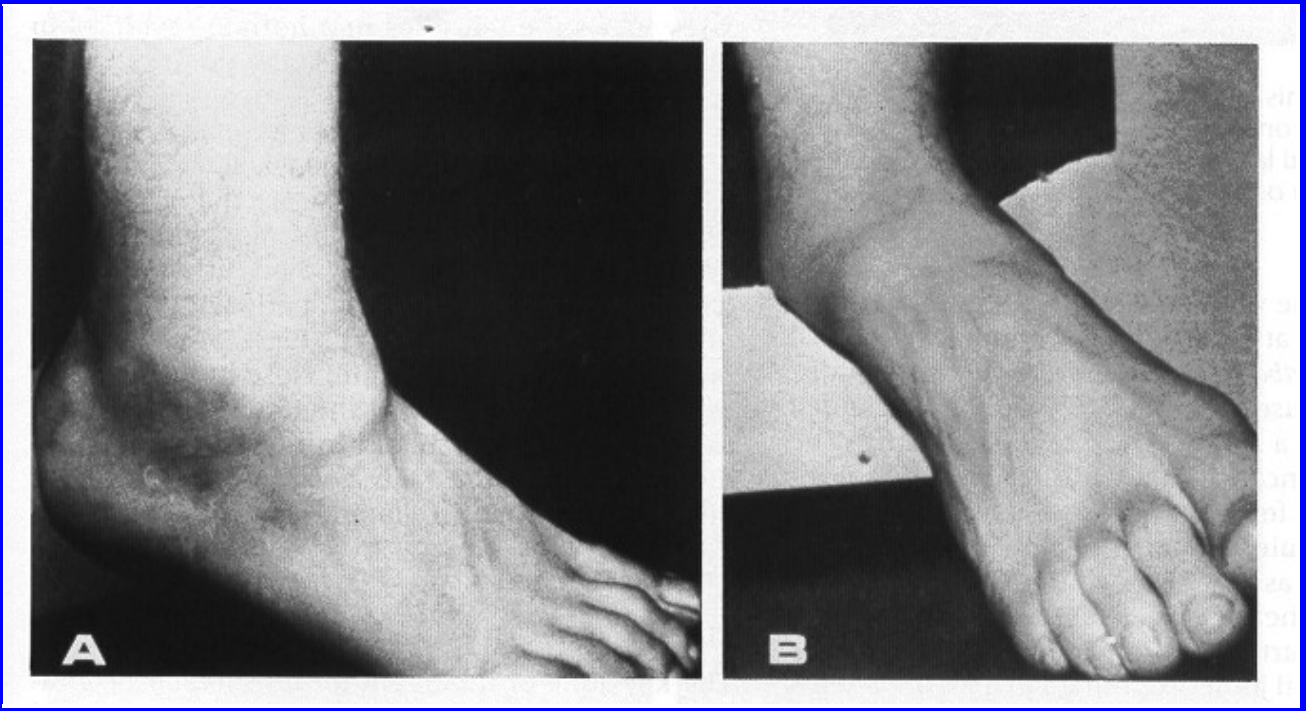


Open Fractures

- May be subtle or obvious
- Assess neurovascular status
- Compartment syndrome?
- Requires emergent treatment
- Sterile dressing and splint for transport
- Antibiotic and Tetanus prophylaxis

Case Presentation

- 20 yo playing basketball, “twisted” ankle



Case Presentation

- Radiographs

Case Presentation

- More Radiographs

Dislocations

- Skin, neurovascular, or articular cartilage damage may occur
- Appropriately reduced by primary physician
- Assess skin and neurological status
- Expedite x-rays
- Gentle reduction

Case Presentation

- 18 yo male complains of pain and mild swelling at ring finger MP joint
- states he fell, cutting his hand
- exam: laceration at dorsal hand near MP joint
- radiographs normal

Septic Arthritis

- "Fight bite," history of penetrating injury, sexually transmitted disease
- Physical exam
  - circumferential swelling
  - redness, warmth
  - painful passive and active motion
  - rests in gently flexed position

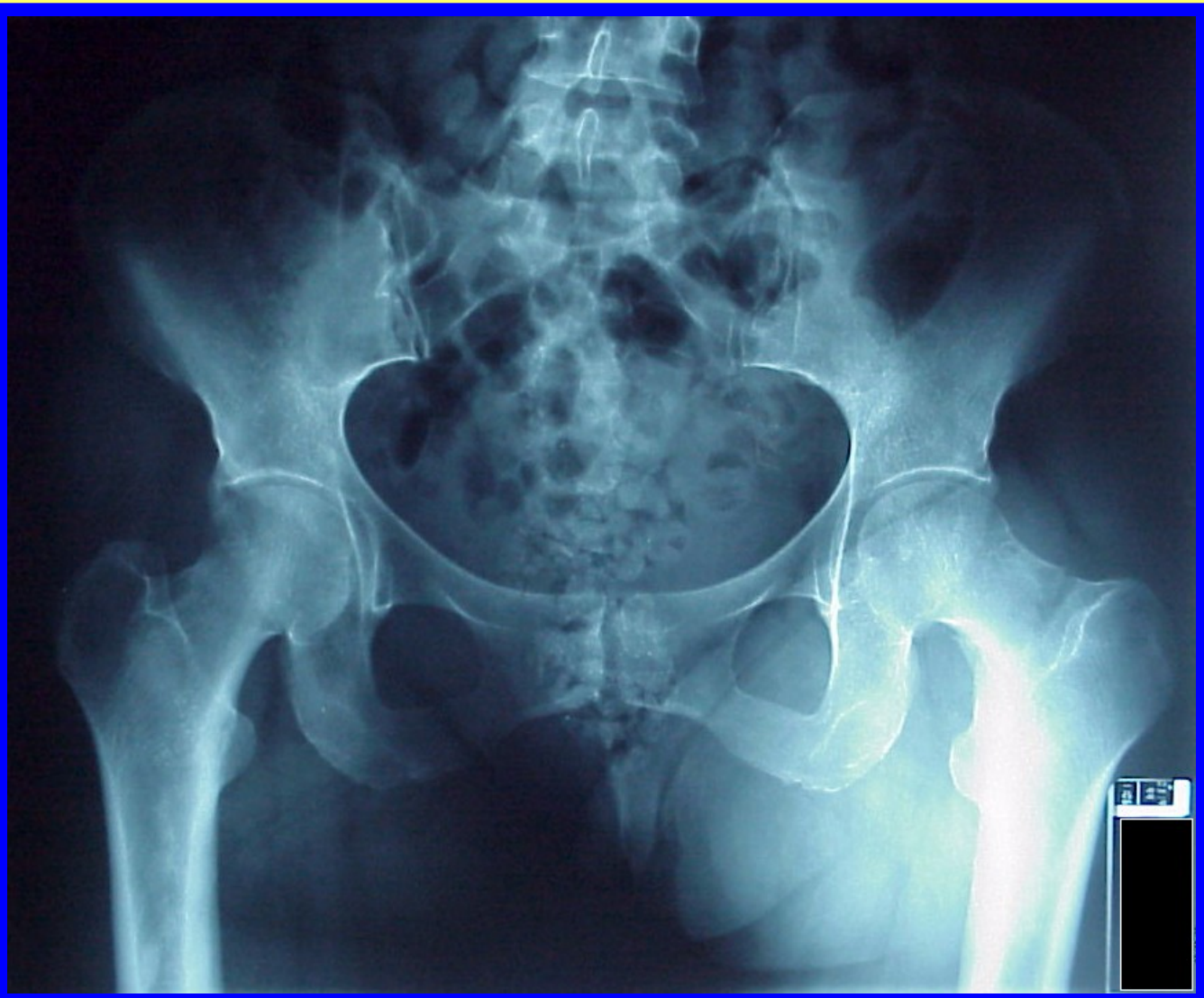
Septic Arthritis

- Problem- joint is closed space
  - poor antibiotic penetration
  - pressure and proteolytic enzymes destroy articular cartilage
- Joint aspiration makes diagnosis, initiates cultures
- Treatment: initiate appropriate antibiotic, emergent referral for surgical irrigation and debridement

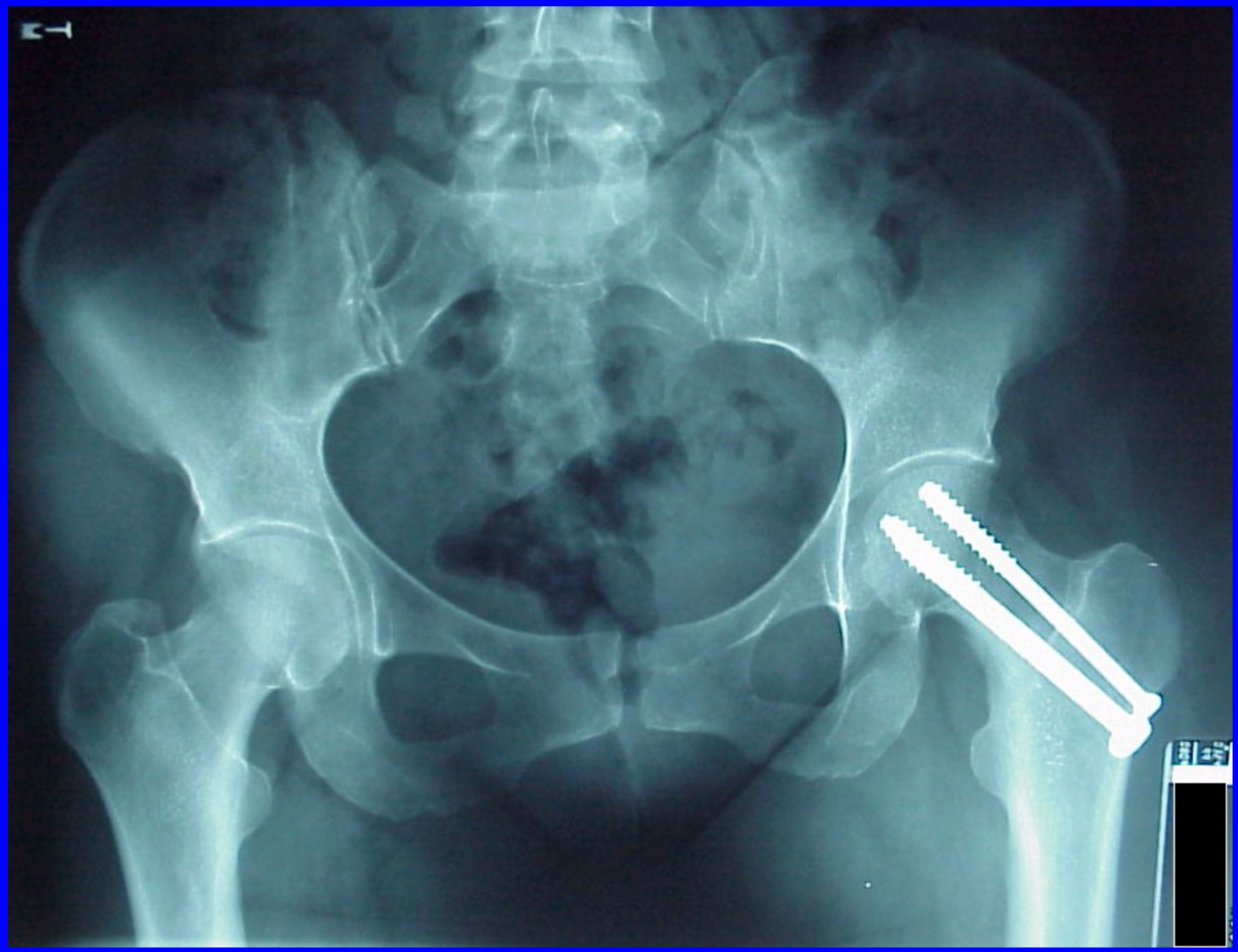
Case Presentation

- 43 yo woman, warrant officer candidate, complains of 2 weeks of left hip pain
- worse with running
- walks with limp
- history of trochanteric bursitis

Case Presentation



Case Presentation



Femoral Neck Stress Fracture

- early diagnosis critical
- bone scan or MRI when suspicion high
- once displaced, risk of avascular necrosis increases substantially
- surgical stabilization required

Femoral Neck Stress Fracture

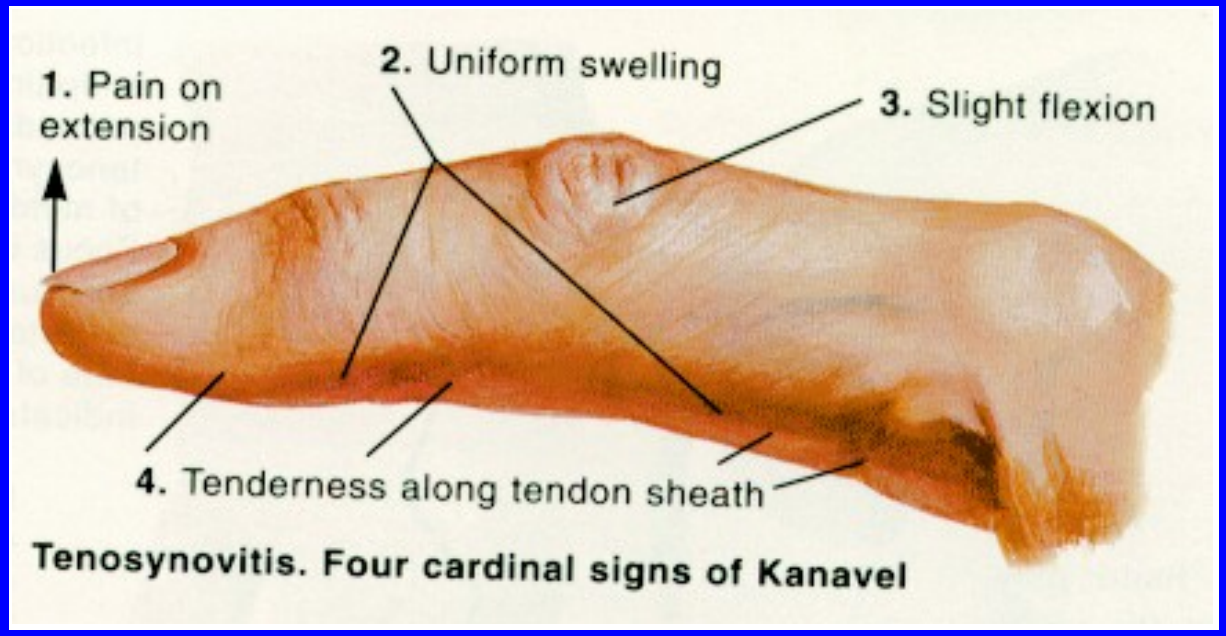
- early radiographs

Case Presentation

- 36 yo woman complains of pain in volar middle finger
- pain with moving finger
- 1mm reddish “dot” at volar middle finger
- history of using bamboo skewers for shrimp the night before

Flexor Tenosynovitis

- Penetrating injury
- "Kanavel's" cardinal signs



Tenosynovitis. Four cardinal signs of Kanavel

Flexor Tenosynovitis

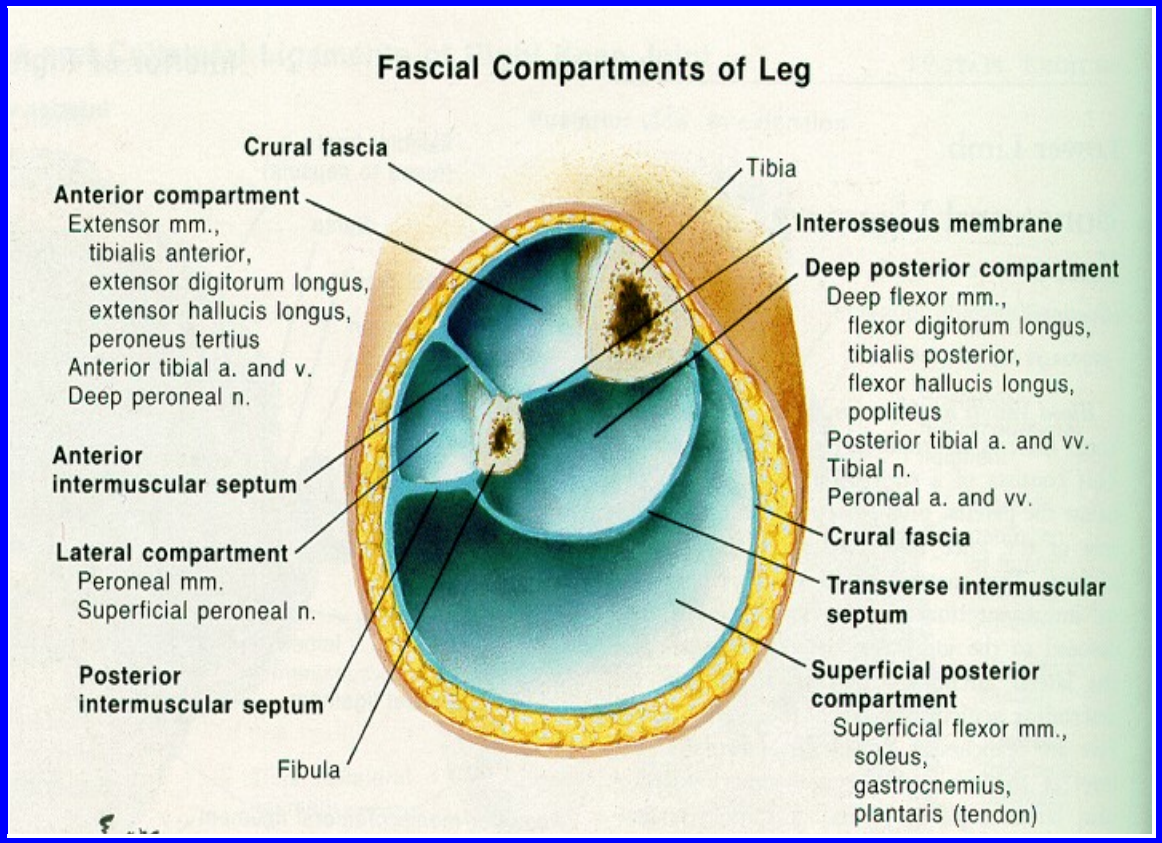
- closed space infection, may spread in hand
- risks scarring, adhesions, and poor gliding of tendon in sheath
- early infections (<24 hours) may be treated with antibiotics
- later/persistent infections require surgical irrigation and debridement

Case Presentation

- 24 yo male with anterior shin pain
- onset while doing road march with ruck sack
- pain present for 2 days, worse with elevation
- radiographs normal

Compartment Syndrome

- Pathophysiology

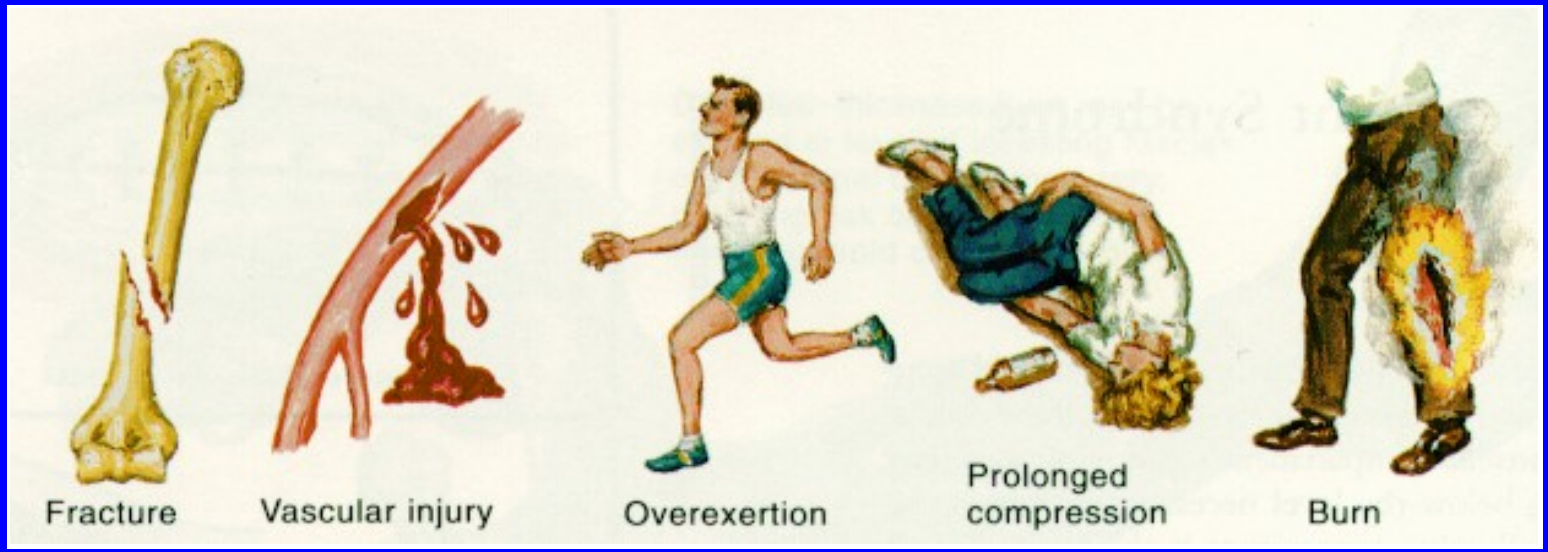


Compartment Syndrome

- elevated intracompartmental pressure
- capillary pressure normally low
- intracompartment pressure exceeds capillary pressure, causes ischemia of muscle

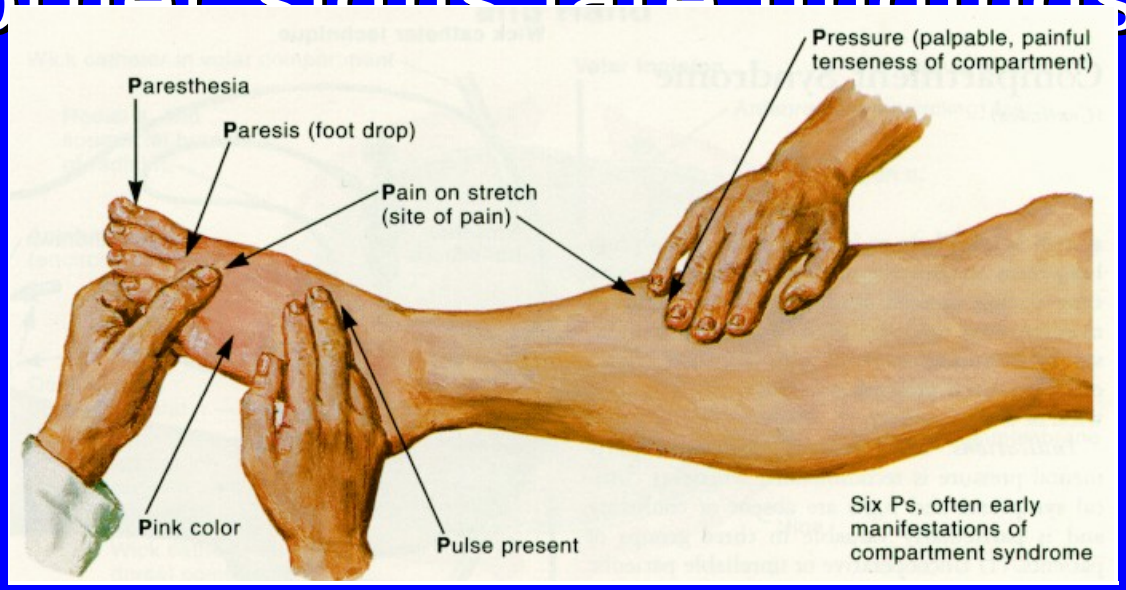
Compartment Syndrome

- Pathophysiology



Compartment Syndrome

- diagnosis: Pain with passive stretch
- tense compartment
- other signs late findings



Compartment Syndrome

- diagnosis: exam enough
- measure compartment pressures
- treatment: surgical fasciotomy

Summary

- Certain orthopaedic conditions require emergent evaluation and definitive treatment
- We have reviewed several of those conditions and their initial evaluation and treatment

Questions?

Thank You!